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SEASONED EQUITY OFFERS AND RIGHTS ISSUES: A REVIEW OF THE EVIDENCE

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ABSTRACT

The paper reviews evidence from the USA and UK on seasoned equity offers (SEOs) and rights issues. There are two main avenues of research: first, the market reaction to announcements of SEOs, and the related questions of the price elasticity of demand for new shares and the timing of issues; second, the costs of issuing and choice of issuing method. The negative reaction to announcements is well documented and the evidence suggests it is more due to an issue being a signal of overvaluation than to inelastic demand. Other findings are less well understood. The shares of issuers underperform appreciably in the long term, and there is evidence that market receptiveness to new issues varies. Companies tend to choose the most expensive method of issue both in terms of direct costs and negative market reaction. US companies use non-rights issues, though rights appear to have been cheaper; UK companies use underwritten rights, though non-underwritten rights are slightly cheaper. A possible explanation is that certification of issuer value by the sponsor is more credible with non-rights issues in the USA and underwritten rights in the UK than with the apparently cheaper alternatives.

SEASONED EQUITY OFFERS AND RIGHTS ISSUES: A REVIEW OF THE EVIDENCE

This paper reviews research on the process by which companies already listed on a stock market sell further shares to investors. Initial public offers (IPOs) are not considered except in so far as there is a connection between IPOs and subsequent seasoned equity offers (SEOs). The research has followed a number of lines of enquiry which to some extent have been pursued independently. The aim is to review these strands in one place so that relations between them, and aspects which remain puzzling, are easier to discern.

The evidence is from the USA unless stated to be from the UK. US studies have practical as well as intellectual interest to European readers because US-style SEOs may start to be used by European companies as an alternative to rights issues, as 'bought deals' have been introduced from the USA in the eurobond market. In the UK there is a debate about whether to retain pre-emption rights. Placings and open offers, in which the rights can not be sold, are already common.

The paper starts with a brief description of the issuing process in the USA and UK. Sections 2 to 4 review research on the negative reaction on average to SEOs and on the related questions of the price elasticity of demand for new shares and the timing of issues. The now familiar idea that an issue signals overvaluation is well supported empirically whereas the evidence on elasticity is mixed. The recent finding of long run underperformance following issues in both countries implies that companies are successful in timing their issues for when they are overvalued and that the initial response is not negative enough. Also it appears that market receptiveness to issues varies over time, and the variation has not been fully explained.

Sections 5 to 7 consider the other main area of enquiry; the costs of issuing and choice of issuing method. Companies tend to choose what appears to be the most expensive method and the reasons for this are unclear. US companies have ceased using rights issues, though they seem to have been cheaper, and companies in both countries

rarely make non-underwritten issues, though they also seem cheaper. The paper concludes with questions for further research suggested by the review.

1. Institutional setting¹

1.1 USA

The issuing company hires an investment bank, known in this context as the underwriter, to organise the issue which is normally on a firm commitment (underwritten) basis; the shares are bought by the underwriter or underwriting syndicate before being sold. Only 2% are best efforts (non-underwritten) contracts (Kumar & Tsetsekos, 1993). Most underwriting contracts are negotiated with a particular investment bank rather than opened to competitive bids. The underwriting fee or spread covers the costs of advice and of marketing the shares, as well as the risk of being left with shares which can only be sold at a loss. Issues have to be registered in advance with the Securities and Exchange Commission (SEC) and a prospectus produced, although since 1982 shelf registration has been allowed, in which a single statement filed with the SEC covers subsequent issues for up to two years.

Non-shelf issues are announced about one month before the shares are actually sold and occasionally issues are withdrawn before being effected.² The shares are offered to investors generally, not just to existing shareholders in the company, and the offer price is set the day before issue, normally very close to the market price. During the time between announcement and offer, the underwriter(s) makes informal agreements with investors to buy the issue ('book-building'). Rights issues were common before the 1970s but have disappeared almost completely since the early 1980s. Many companies have changed their constitutions so that their shareholders no longer have the right of first refusal to buy new shares.

When a company issues new shares it is known as a primary offer; a sale by one or more existing shareholders of a block of shares already in issue is a secondary offer, and combined primary and secondary offers are quite common, as are issues of different types of security at the same time, for example bonds and ordinary shares. US research generally examines separately issues by utility and 'industrial' companies. The reasons

are that the regulatory regime for utilities implies less information asymmetry between management and investors, and that utilities issue shares much more frequently, so that their offers are more predictable. 'Industrial' means companies in *Moody's Industrial Manual*, which 'excludes banking, insurance and other financial companies as well as utilities and transportation companies' (Mikkelson & Partch, 1986, p. 34).

1.2 UK

Rights issues are the norm in the UK and the rest of Europe. The principle of a rights issue is that new shares are offered first to existing shareholders in proportion to their holdings. This protects their stake from being diluted unless they sell their rights. The pre-emptive right of first refusal is a long tradition and is part of the London Stock Exchange's listing requirements. It is also contained in the European Community's Second Company Law Directive (1977) and, since 1980, in the UK Companies Act.

Rights to purchase the new shares are sent to shareholders in the form of provisional allotment letters (PALs) at the same time as the issue is announced. A prospectus must be sent which has been approved by the Stock Exchange. The new shares are conventionally offered at a discount of between 15% and 20% to the market price the day before the announcement and the rights to them can be sold. The offer period must be a minimum of three weeks but will be at least five weeks if it is necessary to call an extraordinary general meeting (EGM) to authorise the issue, since at least two weeks' notice of an EGM must be given. The PALs are not sent out until immediately after the EGM and a further minimum of three weeks is required. The shares go ex-rights the day after the announcement or EGM. Unlike in the USA, there is no gap between the announcement and start of an offer, so the offer price is announced at the same time as the offer rather than a month later.

Issues are normally underwritten in full or in part by investing institutions at the offer price and sponsored by the company's merchant (investment) bank. The issue is not bought first by sponsor or underwriters but the latter are obliged to subscribe for any shares which can not be sold by the end of the offer period; this is known in the USA as standby underwriting. Both discounts and the proportion underwritten vary considerably, and many rights issues are partially pre-sold.

About 40% of UK SEOs to existing shareholders have been 'placings and open offers' in recent years. These are similar to rights issues except that the rights can not be sold and the new shares are usually placed with investing institutions subject to 'clawback' to satisfy demand from existing shareholders entitled to the new shares. Placings without clawback, also known as firm placings, were first allowed under Stock Exchange rules in 1975 and require a special resolution to have been passed which disapplies shareholders' pre-emption rights. From 1986 the disapplication can be made in advance of issues rather than requiring an EGM for each issue, though the disapplication only lasts for 12 months. Placings without clawback often accompany open offers.

2. The negative reaction to announcements of SEOs

Perhaps the most striking finding regarding SEOs is the negative market reaction to their announcement. This was established in a series of papers published in the mid-1980s; taking an average of their results, the two day average abnormal return (AAR) during the announcement day and day before is -3.14% for industrial companies and -0.75% for utilities (Smith, 1986). Subsequent studies have produced very similar results and Choe et al (1993) report that the AAR does not vary with time of year of issue (eg there is no 'January effect'). The loss of market value on announcement is large in relation to the money raised through the offer, representing an average of 31% of the amount of primary offers and 78% of secondary offers (Asquith & Mullins, 1986). In a way the negative reaction is unexpected because, according to standard corporate finance theory, companies will only choose to raise new capital if they have a use for the funds which creates positive net present value (NPV), so that share issues should be viewed as good news if this were the whole story.

The leading explanation of the negative reaction is that the announcement signals overvaluation. The much cited model of Myers & Majluf (1984) assumes that companies know more about themselves than the market (information asymmetry), that managers act in the interests of existing shareholders and that the latter do not buy any of a new issue. To the extent that they do, the relevance of the argument is diminished.

Existing shareholders lose out if the company issues when it knows it is undervalued, because some of the future gain from being undervalued is captured by new investors who buy the new shares. The loss is greater the more new shares are issued and the more undervalued the company is. If the loss is greater than the existing shareholders' portion of the NPV from investing the new funds, the company will not issue. The shareholders of overvalued companies, on the other hand, gain if there is an issue because some of the future loss in value is borne by the new investors. If share prices are unbiased but inaccurate, at any time 50% of companies will be overvalued. But according to the above argument, more than 50% of companies announcing SEOs will be overvalued, hence the prediction of a negative response on average.^{3,4}

2.1 *Evidence on the signalling theory*

Table 1 summarises evidence gathered since the mid-1980s, much of which is consistent with the idea that companies issue equity when they are overvalued and that this explains the negative reaction to SEO announcements. The main doubt about the signalling theory is cast by the apparent lack of relation between the abnormal return (AR) on SEO announcement and the company's subsequent short or long term performance. One might expect a more negative AR to signify a perceived greater degree of overvaluation, and therefore to be followed by greater underperformance. The absence of this relation, while not directly contradicting the signalling theory, suggests that investors are unable to determine accurately the degree of overvaluation at announcement of an SEO. Altogether, the signalling theory has received much empirical support. We now discuss those findings reported in Table 1 which call for amplification.

INSERT TABLE 1 AROUND HERE

Less negative reaction to rights issues. The signalling theory is less applicable to rights issues. Sellers of the rights still lose out if the issuer is undervalued but their entitlement to maintain their stake is protected so that undervalued companies should be less concerned about issuing. The evidence indicates that companies making rights issues are in fact less undervalued than those making SEOs. The response to rights issues is less negative, and the pre-issue 'run-up' is much smaller for underwritten rights issues, and non-existent for non-underwritten rights issues (Eckbo & Masulis, 1992).

For UK rights issues, Marsh (1979) finds ‘a small price fall of some 0.6% on average’ on the announcement date and Levis (1995) reports a two day AAR of -1.33%. US results are similar; Hansen’s (1989) AARs for underwritten rights are -2.61% for industrials and -1.21% for utilities, while Eckbo & Masulis (1992) report AARs of -1.03% and -0.53% respectively, and AARs not significantly different from zero for non-underwritten rights.⁵

Negative reaction not due to lower gearing. Lower gearing implies lower risk, which increases the value of debt at the expense of equity, but there is little evidence that this effect is of economic importance. For example, the response is not more negative if the issue is used to reduce debt (Masulis & Korwar, 1986). Secondary offers and SEOs by companies with no debt both imply no change in gearing but have negative AARs on announcement (Mikkelsen & Partch, 1985; Sant & Ferris, 1994). There is no positive reaction to straight bond issues, which imply an increase in gearing. In a regression with a number of other variables affecting the announcement AR, Choe et al (1993) report that lower gearing has a positive impact on the AR.

SEO announcement causes price of issuer’s bonds to fall. For industrial companies with bonds in issue, Kalay & Shimrat (1987) study the bond price behaviour on announcement of a primary equity offer and find a small but significant negative AAR on the bonds. They interpret this as evidence in favour of the signalling theory, since the inelastic demand explanation (Section 3) implies no effect on bond prices, while the reduction in bond risk occasioned by an increase in equity implies an increase in bond prices.

Positive AAR on announcement of sale of shares in a subsidiary company. Schipper & Smith (1986) suggest various explanations but regard their findings as being consistent with the signalling theory. The financing of the subsidiary is being separated from the rest of the group, so that there is no possibility of overvaluation of the group being signalled. Nanda (1991) goes further and argues that news of an issue by a subsidiary signals that the parent is undervalued, since otherwise the parent would issue. We now turn to evidence which is ambiguous or tends not to support the signalling theory.

Little relation between ARs and short or long term changes in company performance. An SEO announcement appears to have a minor effect on analysts' forecasts and there is little evidence of deteriorating performance in the short term. Jain (1992) and Brous (1992) find a positive relation between AR on announcement and revision in earnings per share (EPS) forecasts for the current year, and that revisions in EPS forecasts during the six months after announcements are on average negative. Manuel et al (1993) report a small reduction on average in the next dividend per share (DPS) after an issue.⁶ Regarding the longer term, Jung, Kim & Stulz (1996) find no significant relation between announcement ARs and the extent of underperformance in the company's share returns over five years post issue.

Conflicting evidence on relation between announcement ARs and growth opportunities. There should be a positive relation because an issue by a company with good opportunities is more likely to finance positive NPV projects. Pilotte (1992) finds that the response to equity and debt issues is more negative for mature, slow growing companies with relatively high dividends or which have suspended dividends. He argues that the growth opportunities of younger companies are more valuable and that an issue by a mature company is more likely to signal overvaluation of assets in place. The evidence of Denis (1994) makes him more sceptical. He finds a (weak) relation between announcement AR and growth opportunities only for the top decile of companies ranked by measures of these opportunities. Several papers measure growth opportunities by market-to-book value or by Tobin's Q (market value divided by an estimate of replacement cost of the company's assets), and again the evidence is conflicting. Jung et al (1996) report a significant positive relation between announcement AR and market-to-book value of the issuer but Denis (1994), Pilotte (1992), Dierkens (1991) and Barclay & Litzenberger (1988) find the relation is insignificant at the 5% level. The interpretation of Jung et al is that a positive relation between announcement AR and growth opportunities is consistent with an agency explanation for the negative reaction to SEOs on average, as well as with the signalling theory.

The negative reaction may reflect agency costs. Myers & Majluf assume that managers act in the interests of existing shareholders. Jung et al suggest that this

assumption is false for some issuers and that the negative reaction to SEOs is largely because some companies issue to increase their size rather than to maximise shareholder wealth, because some managers promote their own welfare which is assumed to be related to company size. They model the choice between issuing equity and issuing debt, and use the model to identify a minority of companies in their sample which issue equity when they would be expected to issue debt. They find that the announcement AR is most negative for this minority and that they perform worse post-issue in terms of growth of assets, earnings and dividends, than do companies issuing equity which the model predicted would do so.

2.2 *Private placements*

In contrast to SEOs to the public, the announcement of privately placed issues is treated as good news, with a positive AAR of 4.4% (Wruck, 1989), despite a positive cumulative AAR of 6% over two months preceding the announcement. The purchasers of a private placement (in 58% of cases there is only one purchaser) may well have inside information and their willingness to buy, albeit at a discount in some cases, appears to be a positive signal. Discount-adjusted ARs are positively related to increases in concentration of non-managerial ownership, defined as the proportion owned by the six largest stakeholders, though only if this proportion rises to 25% or more. Wruck views the above as evidence that concentrated ownership can add value by being more effective in making managers act in shareholders' interests.

A subsequent study of private placements by Hertzel & Smith (1993) examines a sample of smaller (mainly NASDAQ) companies than those in Wruck's sample. The average discount is 20.1% and the announcement AAR is 1.72%. They argue that the most important reason for discounts is to compensate purchasers for the cost of investigating the issuer; 'we find larger discounts for placements by firms that are difficult to value and where the degree of uncertainty about firm value is high' (p. 477), and discount-adjusted ARs are more positive for such firms. They find no relation between ARs and changes in ownership concentration. Thus they regard the positive ARs as being more due to the placement's signalling of favourable information about issuer value than to the benefit of more concentrated ownership, at least for smaller companies.⁷

3. The price elasticity of demand for new shares

Elasticity was one of the first questions addressed by researchers. It has been argued that a temporary fall in the market price either on announcement or on the issue day could be due to inelastic demand. An offer price set at a discount to the market price the day before the offer could also be seen as evidence of inelastic demand. The research on price elasticity is summarised in Table 2; we consider evidence on the issue day first.

Kraus & Stoll (1972) study the impact of secondary sales and find a negative AAR which they attribute mainly to inelastic demand as there is a partial recovery in price immediately after, though they acknowledge the possibility of an information effect since the sale is announced at the same time it is made. Scholes (1972) also finds a negative AAR on issue but no price recovery and for registered secondaries, announced 20 days prior to issue, the AAR on announcement is more negative than on issue. Scholes believes the information effect predominates. Smith (1977) and Marsh (1979, for the UK) study primary offers and do not support the inelastic demand theory, but they do not use daily data.

The first study to use daily data for primary offers is by Hess & Frost (1982). For a sample of utilities, they find no significant AAR on the issue day or surrounding days, no relation between ARs and issue size, and no difference in post issue price behaviour between stabilised and unstabilised issues. Hess & Bhagat (1986) find significant AARs on the issue day of 0.22% for utilities and -1.06% for combined primary-secondary offers by industrials, and an insignificant AAR of -0.23% for primary offers by industrials, but again they find no relation between ARs and issue size. Lease et al (1991) argue that half of the AAR of -0.15% they find on the offer day for a mixed sample can be explained by a bias due to the use in (US) event studies of the price at which the last trade of the day is struck. On the offer day, some purchasers buy from the underwriter rather than in the market, increasing the probability that the last trade is by a seller, and therefore at the bid price. Use of mid-point prices eliminates this bias.⁸

Loderer, Sheehan & Kadlec (1991) examine the offer price in relation to the market price the day before and report for a mixed sample of 1,608 SEOs an average return from preoffer to offer price of -1.41% and a median return of -0.35%. The effective discount is a little larger because investors do not incur commissions in buying from underwriters. However, no return is possible from buying the offer and selling at the bid price on the issue day, although there is a positive AAR of 2.86% from buying at the offer price and selling 30 days later. They point out the contrast with the substantial underpricing of IPOs. Likewise, Eckbo & Masulis (1992) report that in 62% of industrial company issues the offer price is set equal to the previous day's closing price; in only 3% of issues is the offer price above the market price. Bhagat & Frost (1986), Lease et al (1991) and Eckbo & Masulis find that utilities price their offers at a small premium on average. In sum, these studies of the issue date provide little empirical support for the inelastic demand theory.

If the fall in value *on announcement* of SEOs reflects inelastic demand, this would imply a negative relation between the AR on announcement and the size of the issue relative to the company's pre-announcement market capitalisation. The evidence is mixed.⁹ Part of the fall in value on announcement is temporary and is recouped after the issue day, which may imply that investors incur extra costs in buying an issue and so require a 'liquidity concession', to compensate them for the costs of having cash available. Another explanation, suggested by Gerard & Nanda (1993), is that the share price before issue day is temporarily depressed by shareholders making a turn by selling shares, driving down the price, and then buying shares back at the offer price. A recovery in price after the issue day is consistent with this.

The post-issue recovery appears to be stronger for industrials. Barclay & Litzenberger (1988), using intraday data for a sample of industrials, confirm the negative reaction immediately after the announcement but also find a cumulative AAR over the issue day and the 20 days following of 1.47%. The signalling explanation predicts a permanent fall in value rather than a partial recovery post issue. They argue that the temporary fall in value that persists between announcement and issue 'reflects a discount that must be offered to compensate investors for the transaction costs they bear in adjusting their portfolios to absorb the new shares' (p. 75). Hess & Bhagat (1986)

find no significant cumulative AAR for the first ten days post issue for a sample of industrials and utilities, which may be due to an insignificant cumulative AAR for utilities. Asquith & Mullins (1986) report that cumulative AARs increase by 2.6% points during the 60 days after announcement; the figure is 3.9% points for industrials only. For secondary offers, Mikkelsen & Partch (1985) also find some evidence of recovery following issue for registered sales only, whose average value in their sample is nine times that of non-registered sales. The cumulative AAR during days six to 49 after issue is 1.64%; for the first five days it is not significantly different from zero.

The difference in post-issue returns between industrials and utilities is, on the face of it, inconsistent with the idea that investors incur extra costs in buying an issue. Since utility issues are more predictable, portfolio adjustment costs might be lower, but the studies do not examine this.

Loderer, Cooney & van Drunen (1991) argue that the negative reaction on announcement can not be entirely explained by the adverse information argument and suggest that it may in part reflect a finite elasticity of demand. They focus on utility SEOs whose announcement is expected to signal less information than SEOs by industrials. Their strategy is to seek evidence that announcements convey bad news. They examine the response to SEO announcements of nonconvertible preference share prices, revisions in analysts' EPS forecasts, and actual EPS outcomes and book returns on equity before and after the announcement. Since they find little evidence of utility SEOs either being interpreted as signalling adverse information or preceding a decline in performance, they infer that some or perhaps most of the price fall on announcement reflects finite demand. They measure elasticity as the percentage change in the share price on announcement divided by the percentage increase in the number of shares in issue. However, they find that elasticities are only weakly related to proxies for investor demand such as average trading volume in the shares.

The balance of evidence indicates that the effect of inelastic demand, if any, is fairly small. Large discounts to market price are not necessary to sell shares on the issue day and there is no clear relation between relative issue size and AR on announcement or issue day. However, the partial price recovery post issue day may be evidence of

inelastic demand. One caveat is that companies delay issues, or withdraw them after announcement, if potential demand is perceived to be weak. It could be argued that analysis of issues which proceed is therefore not a fair test of the inelastic demand theory.

4. The timing of issues and the performance of issuers

The timing of issues is affected by several factors which boil down to the company's need for equity and its cost. Investors' required return on a share is not observable and is impossible to estimate with precision. In a perfectly efficient market the required return will be fair at all times, that is, correctly reflecting the risk, so that timing does not matter except in the sense that the company should issue when, and only when, the proceeds can be used to produce a positive NPV. In practice timing is seen as very important and advice on when to issue is a major aspect of investment banks' services. We have seen that the signalling theory predicts that companies will avoid issuing when they perceive themselves to be undervalued. In other words, they will issue when they perceive their cost of equity to be low relative to that of other companies of similar risk. They may also attempt to time their offers for when they perceive the cost of equity in the market generally to be low, though they are less able to judge this since they have no inside information or expertise on the market as a whole whereas they do about their own circumstances.

4.1 Issue timing in relation to earnings and dividend announcements

It is in companies' interests to try to reduce the price fall on announcement of SEOs and several recent papers present evidence that companies time their issues for when the market is relatively well informed, so that the announcement is not viewed as such a negative signal. Korajczyk, Lucas & McDonald (1992) present a model in which earnings and dividend announcements reduce information asymmetry which then increases again with the passage of time until the next announcement. This model predicts that the response to news of a share issue will be less negative the closer it is to the last announcement. Korajczyk et al (1991) find that companies avoid issuing close before the next quarterly earnings statement and that the AR on news of an SEO is indeed less negative the sooner it is after the latest statement. Dierkens (1991) reports that companies with volatile shares are more likely to issue immediately after earnings announcements, perhaps to minimise information asymmetry.

Manuel, Brooks & Schadler (1993) refine the results of Korajczyk et al by including DPS announcements. They only find a relationship between the negative response to news of the offer and the time since the last DPS, not EPS, announcement. They also find that the closer the next dividend announcement the more likely is a fall in post-issue DPS and the larger the fall. The average change in post-issue DPS is -1.74%. They suggest that issues will tend to be timed shortly after the announcement of unchanged or increased DPS, and incur a less negative AR than issues made shortly before a dividend announcement is due. While Loderer & Mauer (1992) also find that issues are more likely to be after DPS announcements than before, they are more sceptical about the information content of DPS announcements. They do not find that a prior increase in DPS is associated with a less negative AR on issue announcement, nor that issuing companies are more likely to pay dividends or more likely to have increased DPS prior to issue than a random sample of non-issuers. The least negative ARs on average are for the sample of issuers which do not pay dividends. They suggest that their evidence provides little support for the theory that DPS announcements reduce information asymmetry.

4.2 *Issue timing from a long term perspective*

Further evidence on a number of aspects of issue timing is provided by Choe, Masulis & Nanda (1993) using large samples of 5,694 SEOs, 1,324 convertible debt issues and 6,439 straight debt issues during 1971-91. The ratio of share to bond issues by number is higher during upturns than downturns in the economic cycle but lower following relatively high stock market volatility. For industrial SEOs, announcement ARs are negatively related to the previous cumulative AR of the share, as in some other studies,¹⁰ but positively related to previous change in the stock market index and to current and leading business indicators, as is the share/bond issue ratio. Utility SEOs are less affected by these factors, except the pre-announcement cumulative AR.

Choe et al argue that these results can be explained by a version of the signalling theory. Debt is assumed to have higher agency costs than equity, but companies will use debt if they are too undervalued because existing shareholders are assumed not to buy the new shares. Better economic conditions and more certainty about asset values both imply a higher market value for equity which means that fewer shares have to be sold to fund a given project, so that the existing shareholders are less diluted and retain more of the future gain from their company being undervalued. Then more undervalued companies will choose to issue equity instead of debt as economic conditions improve, and the SEO announcement AR will be less negative. Lucas & McDonald (1990) present a related model which explains the positive AAR before announcements in terms of undervalued companies waiting to issue until after the undervaluation disappears. They explain the correlation between rising markets and volume of issuance by the rising market being associated with elimination of the undervaluation, which triggers an above average volume of issues.

But Bayless & Chaplinski (1996) argue that the market response to industrial SEOs varies over time in ways not entirely explained by macroeconomic or firm-specific factors. There are 'hot' markets in which the AAR is less negative than in 'cold' markets and they estimate that, controlling for other factors, the difference in AAR is between 1.54% and 2.33% points. A hot (cold) market is identified as having a large (small) SEO volume relative to normal issue volume. Their strategy is to show that hot markets, defined this way, do not coincide much with economic upturns and that issuers

during cold markets have more need for funds than issuers during hot markets, so that cold market issues should be less likely to signal overvaluation. They find that in cold markets investors react to SEOs 'in ways that suggest greater concern for firm specific information, and indirectly asymmetric information' (p. 277) but do not explore why asymmetric information or concern about it might vary over long periods which are not much related to the business cycle.

4.3 *Performance in relation to the issuer's IPO*

Several studies have tested the theory that the underpricing of IPOs is a deliberate policy by companies with above average prospects to signal their quality and enable them to issue at a higher price subsequently. Underpricing is costly because the company sells shares for less than their fair value. As time passes after an issue more information emerges, helping investors to determine a company's true quality. It is therefore not worth some below average companies to imitate the better ones by underpricing their IPOs, given this possibility of being 'found out', so that underpricing is a credible signal of quality.

In support of such a theory, Welch (1989) notes that the proceeds of SEOs following an IPO are on average three times bigger than the IPO proceeds and that, over a ten year horizon, SEOs are clustered in the first three years after the IPO, with two-thirds of the total occurring then. But several researchers subsequently have questioned whether companies signal their quality through IPO underpricing. James (1992), Garfinkel (1993) and Michaely & Shaw (1994) do not find a significant difference in IPO underpricing between companies which issue again up to seven years following their IPO and those which do not.

Jegadeesh, Weinstein & Welch (1993) and Garfinkel (1993) suggest that the likelihood, timing and size of a subsequent SEO are more related to the performance of the shares after the IPO than to the return on the first day of trading. Jegadeesh et al find that the more positive the AR during the first 40 days after the IPO, the more likely is an SEO in the next five years and the earlier and larger it will be. However, the AR on the SEO announcement is related to the return on the first trading day after the IPO, but is unrelated to ARs over the 40 days following the IPO, a result apparently at odds with

their other evidence. The authors suggest that, though greater underpricing, measured by a larger positive day one return, is associated with a less negative AR on announcement of the SEO, this evidence in support of signalling is weak and the decision to reissue is influenced by aftermarket performance.¹¹ For the UK, Levis (1995) is inclined to agree. He finds no relation between initial IPO underpricing and the response to news of a subsequent rights issue, but the probability of a rights issue increases the higher are cumulative ARs in the four months after the IPO.

The relationship between the reputation of IPO underwriter, the underwriting spread charged, and subsequent SEOs is examined by James (1992) and Carter (1992). They present evidence that the IPO underwriting spread is slightly lower for companies which subsequently make SEOs using the same underwriter and suggest that underwriters offer a discount on the IPO spread if a subsequent SEO is likely.

4.4 Long term performance post issue

Recent studies have found that shares underperform on average over the five years following an SEO. Loughran & Ritter (L&R, 1995) measure long run performance by matching each issuer with the nonissuing company closest in size. They examine industrial issuers and use large samples of 4,753 IPOs and 3,702 SEOs during 1970-90. Both IPO and SEO samples exhibit similar underperformance. The average equally weighted buy-and-hold return for up to five years from SEOs is 33% compared with 93% from the matched nonissuing sample, giving a 'wealth relative' ($[1 + \text{holding period return of issuers}] / [1 + \text{holding period return on benchmark}]$) of 69%. The value weighted wealth relative is 76%, so smaller issuers underperform more than larger ones. There is no underperformance during the first six months; it is greatest during the next 18 months and reduces thereafter. Post SEO underperformance is similar whether or not the issuer's IPO was within five years of the SEO, though Speiss & Affleck-Graves (S&AG, 1995) find that underperformance is worse for issuers whose IPO was within three years. Companies making IPOs and SEOs tend to have high market values relative to book values and such companies have below average returns, but 'less than 25%' of the underperformance is attributed to the high market-to-book value factor. L&R suggest that 'companies announce stock issues when their stock is grossly overvalued,

the market does not revalue the stock appropriately, and the stock is still substantially overvalued when the issue occurs' (p. 47).

The study by S&AG excludes secondary and combined issues, and matches issuers by size and industry and by size and book/market value, as well as by size alone. Underperformance is less than in L&R and less using the latter two benchmarks, which produce very similar results. The equally weighted five year wealth relative is 79% using a sample matched by size and industry (cf 69% in L&R). It appears that most of the difference between L&R and S&AG's results is because the post issue performance following secondary issues is worse than following primary issues.

The above stock market evidence corroborates Hansen & Crutchley's (1990) finding of long term post SEO underperformance measured by earnings. They use a time series model to estimate expected earnings before interest and tax. 'Abnormal earnings' are negative during the three years following the year of the issue and the degree of earnings underperformance is positively related to the issue size as a proportion of the issuer's total assets. On the other hand, Jung et al (1996) find no relationship between measures of overvaluation at issue, including the AR on announcement, and subsequent underperformance. They do not believe that the negative AAR on announcement is a fraction of the long run negative AAR post issue, but offer no alternative explanation.

For the UK, Levis (1995) conducts a similar study to L&R's and also reports long run underperformance for four years following IPOs and 18 months after the month a rights issue is announced. The rights sample only includes companies with an IPO in the previous five years, unlike in L&R and S&AG. Underperformance starts immediately after the rights issue and, for companies with no subsequent issue, immediately after the IPO. For those which do make another issue, the cumulative AAR is positive for the first year post IPO (longer if there is more than one issue) before declining.

The results are not easily comparable with the US studies but underperformance following IPOs appears to be much less in the UK. The equally weighted wealth relative three years after IPOs is 78% in L&R matching by size compared with 96% in Levis

matching by a small companies index. But the underperformance following UK rights issues is at least as much as following US SEOs. Levis estimates cumulative AARs after 18 months of between -11.2% and -18.5% for the UK, depending on the benchmark, compared with S&AG's estimates for the same period of between -8.4% and -11.6%.

The evidence reviewed in Section 4 indicates that companies have reason to regard the timing of issues as important. The response is less negative if the market is relatively well informed about the issuer and it may be possible to identify *ex ante* periods during which an issue is likely to be better received. The evidence of issuing behaviour after IPOs and of positive ARs prior to issues in general shows that companies tend to issue when their shares have been doing relatively well. Most dramatic is the finding of long run underperformance of issuers' shares after IPOs and SEOs, which suggests that companies are *successful* in issuing at times when they are overvalued.

5. US evidence on underwriting

The costs of investment bank services in the USA (and UK) are substantial, accounting for approximately 5.5% on average of the gross proceeds for industrial companies and 3.8% for utilities; other expenses such as legal and accounting fees bring the total direct costs to 6.1% and 4.2% respectively (Eckbo & Masulis, 1992). 60% of the underwriter's fee is for selling the shares, some or all of which the underwriter/selling syndicate might have to give up if demand is weak, 20% for underwriting proper and 20% for organising the issue (Hansen & Torregrosa, 1992).

One reason for underwriting is to provide insurance, protecting the issuer from insufficient demand for the new shares at the offer price. The cost of the insurance aspect of underwriting should be related to the riskiness of the issuer (Mandelker & Raviv, 1977). A further service provided by the underwriter is certification of the issuer's value (Booth & Smith, 1986). The underwriter implicitly certifies that the issuer is not overvalued by buying the issue at the offer price, which is a valuable service given information asymmetry and the incentive to issue when the company perceives its shares to be overvalued. If an underwriter is perceived to be marketing overvalued issues, its

reputation will suffer and it will lose business. Building a reputation has costs, but once established it can be used to support many issues. The problem with a company certifying its own issue is not just persuading outsiders to believe it but also that the cost of doing so will be spread over relatively few issues compared with an underwriter. Another possible benefit from underwriting is monitoring: 'investigating the issuing company with the purpose of improving performance and disciplining errant managers' (Hansen & Torregrosa, 1992, p. 1541).

Empirical research on underwriting costs shows that there are economies of scale in issuing and that the costs are indeed positively related to the risk of the issuer. Bhagat & Frost (1986) and Hansen & Torregrosa (1992) estimate for utilities and industrials respectively that the cost function in relation to issue size is U-shaped. Issue size in these studies is measured in absolute terms, not in relation to issuer value. Small issues are certainly much more expensive. Ng & Smith (1996) report total costs of 21.0% of gross proceeds on average for their sample of issues with warrants, with an average size of \$5.0m in 1981 dollars. The total costs are 7.5% on average for the sample without warrants, with an average size of \$39.2m.¹² But beyond a certain amount, the benefits of economies of scale appear to be outweighed by the greater risk and marketing effort of a large issue. For secondary offers, Mikkelsen & Partch (1985) also find that the underwriter spread is positively related to the proportion being sold, suggesting that the marketing effort is greater for selling larger stakes.

Booth & Smith (1986) argue that if certification is an important aspect of underwriting, its value should increase with firm-specific risk rather than market risk, and they find that underwriter spread is positively related to unsystematic risk but unrelated to market risk (beta), as do Hansen & Torregrosa and Blackwell, Marr & Spivey (1990). But Bhagat & Frost (1986) find that the spread is related to both beta and market volatility as well. It may be harder to find buyers in a more volatile market. Further evidence in support of the certification hypothesis comes from studies of shelf issues. Blackwell et al (1990) analyse a mixed sample of shelf and 'traditional' issues and report that the costs of shelf issues are more dependent on the specific risk of the issuer, so that beyond a certain level of specific risk, traditional issues are cheaper. Their interpretation is that underwriters are more sensitive to risk in shelf issues because they

are unable to certify shelf issues as thoroughly as traditional issues, which means they are more likely to incur liabilities for inadequate 'due diligence' and more likely to suffer loss of reputation. Similarly, Denis (1991) finds that shelf issues are made by large companies with low specific risk, and that the AAR on announcement of shelf issues is more negative than on announcement of traditional offers. He believes the more negative reaction to shelf issues reflects less thorough certification of the issuer's value. Best efforts contracts also imply a lower level of certification as they are not underwritten, and Kumar & Tsetsekos (1993) report a more negative AAR on announcement of best efforts than of firm commitment offers.

The main evidence for the monitoring hypothesis presented by Hansen & Torregrosa is that the spread is inversely related to the proportion of the issuer owned by its board, controlling for issue size and risk. They argue that higher board ownership reduces the need for monitoring managerial performance but implies more effort in certifying value, since manager-owners have more incentive to 'cheat outsiders'. Since higher board ownership is associated with lower spread, they interpret this as evidence that monitoring of management is an important element in underwriters' fees.

Ng & Smith (1996) argue that the practice of paying underwriters by means of warrants on the issuer's shares makes certification more convincing. 'By accepting warrants that tie compensation to long-run price performance of the issue, an underwriter who lacks reputational capital can provide the bond that is necessary for issue price certification' (p. 366). They report that only 13.6% of issues with warrants are underwritten by investment banks with national distribution networks and the best reputations. Although issues with warrants also have relatively high cash payments to underwriters and are more underpriced, even after controlling for size, Ng & Smith argue that the costs of issue would have been higher without use of warrants.

Their strategy is to model the expected costs of underwriting and underpricing, but excluding the implicit value of any warrants, based on variables expected to affect these costs. The variables are: issue size; three proxies for the degree of information asymmetry, vis age, market value and book-to-market value of issuing company; and three proxies for risk, vis company beta, market model residual standard deviation and

standard deviation of the market. They also allow for the use of warrants to reduce the other costs. The argument is that without warrants, certification would be less credible and it would be harder to sell the shares. In estimating the coefficients on the variables affecting expected costs, they include a variable measuring the probability of choosing to pay (partly) via warrants. This probability is determined by the other features of the issue and issuer included in the model. For issuers paying via warrants, the probability has a negative coefficient, ie an increased likelihood of paying via warrants has a negative impact on other expected costs. Its inclusion enables a more accurate relationship to be estimated between expected costs and the other variables.

The final stage of the reasoning is as follows. The relationship between expected costs (excluding the value of any warrants) and issue size and the other explanatory variables is affected by whether the issuer actually pays via warrants. Therefore two models of the relationship are estimated, one using the sample of issues with warrants and the other using the sample without warrants. For each issue, the expected costs can then be estimated from each model. This gives an estimate of the expected costs had the company chosen to pay via warrants, or had it not. For the sample which actually paid via warrants, the expected benefit on average from choosing to use warrants is 13.25% of gross proceeds, compared with the estimated average value of the warrants of 5.67%. The authors surmise that what makes SEOs with warrants expensive is factors such as small size and high risk of the issuer, not the warrants which are a symptom of such factors.

The popularity of negotiated underwriting awaits a satisfactory explanation because competitive underwriting appears to be cheaper than negotiated. Logue & Jarrow's (1978) finding on this is confirmed in Bhagat & Frost's (1986) study of the costs of utility SEOs; the average spreads in their sample are 3.10% for competitive and 3.93% for negotiated, and competitive offers are made at a price further above the pre-issue price. Controlling for economies of scale and for the risk of the issuer does not change the finding. Yet 'public utilities use the competitive method only when required by regulation to do so' (p. 254) and the authors are unsure why; like Smith (1977), they are inclined to think that managers are acting in their own interests at the expense of the interests of shareholders. Kumar & Tsetsekos (1993) add to the puzzle with their finding

that the cumulative AARs surrounding announcements of negotiated offers are somewhat more negative than those for competitive offers, suggesting that certification through negotiated underwriting is not perceived as superior. In fact the two day announcement AAR for competitive offers is not significantly different from zero. But this may be due to characteristics of companies which choose competitive offers, a possibility which the authors do not investigate.

6. The disappearance of rights issues in the USA

The disappearance of rights is the main US puzzle on choice of issuing method, because the evidence indicates that rights issues were substantially cheaper than SEOs (Table 3). Brealey & Myers (1996), following Smith (1977), quote an industrial company's apparently spurious reasons in favour of a resolution removing its shareholders' pre-emption rights and conclude that 'the arguments that firms make for avoiding rights issues don't make sense. We don't know why they use cash offers [SEOs]. Perhaps there are hidden reasons...' (p. 405).

INSERT TABLE 3 AROUND HERE

The lower cost of non-underwritten rights issues was first highlighted by Smith (1977). The only disadvantage of rights issues which he believes to have substance is the transactions costs and tax liability incurred in selling rights, but he does not think this explains their low rate of use. He argues that SEOs are popular because investment banks make more profit from them and persuade/bribe company managers to use them rather than rights issues. He believes that this inefficiency persists because the costs to shareholders are less than the costs of monitoring management and preventing them choosing relatively costly SEOs. The evidence on the relatively low cost of rights issues is reinforced by Bhagat's (1983) finding that, on announcement of proposed amendments to company charters to remove pre-emptive rights, there is a statistically significant AAR of -0.34%, or -0.68% if this is the only unusual item announced.

However, Hansen & Pinkerton (1982) argue that non-underwritten rights are cheaper entirely because they tend to be used by companies which are majority owned

by a single shareholder or their own board, so that much less marketing effort is involved as well as there being no underwriting. Out of 54 non-underwritten issues during 1971-79, 26 of the issuers had a shareholder or board with a stake of two-thirds or more and a further 17 had stakeholders with between one- and two-thirds of the shares. The remaining 11 issuers had much higher expenses.

The situation is different with underwritten rights issues, which tended to be made by widely held companies and utilities. Hansen (1989) presents evidence of a loss of value immediately before the offer period which is to some extent recouped during and afterwards. He reports cumulative AARs of -6.41% and -4.10% for industrials and utilities respectively during the 20 trading days preceding the offer period but after the announcement. The cumulative AARs during the offer period itself are 1.34% and 0.07% and during the 20 days after they are 3.55% and 1.59%.

Hansen's explanation is that this temporary loss of value reflects, not inelastic demand, but anticipated transactions costs incurred by shareholders who sell their rights, including capital gains tax and offering buyers a discount. Hansen believes that these costs are more than enough to make underwritten rights uneconomic relative to SEOs. But this depends on the proportion of shareholders expected to sell their rights, because the costs of an SEO are borne by the company, ie by all shareholders, and most of the loss of value on announcement is permanent. In comparison, the extra costs of underwritten rights are avoidable and borne by sellers only, and if most shareholders take up their rights, it should be less costly for the remainder to find buyers.¹³

For their sample of SEOs, underwritten and non-underwritten rights mentioned above, Eckbo & Masulis (E&M, 1992) find that issue costs as a percentage of gross proceeds are negatively related to issue size and the degree of shareholder concentration, confirming the findings of Smith (1977) and Hansen & Pinkerton (1982), and positively related to the share's risk measured by the standard deviation of its daily return. But even controlling for these factors, non-underwritten rights are significantly cheaper than SEOs and underwritten rights for both industrials and utilities, and underwritten rights are cheaper than SEOs for industrials. Also E&M do not replicate Hansen's finding of a temporary loss of value during the 20 days before the offer period for underwritten

rights. They therefore conclude that previous explanations are inadequate and offer another one, which is an adaptation of the signalling theory.

Their argument posits a crucial role for ‘subscription precommitments’ announced at the same time as a rights offer, under which a proportion has been pre-sold, and for the certification function of underwriting. They assume asymmetric information, under which the company knows whether its shares are over or undervalued, and they assume that companies will choose the cheapest issue method, including the expected loss of value on announcement in the costs. Subscription precommitments matter in E&M’s argument because they signal how overvalued the issuer is likely to be. If a company is undervalued it will still issue if the offer is entirely pre-sold to the existing shareholders because none will lose out from selling rights too cheaply. As the pre-sold proportion diminishes, more shareholders are likely to be selling their rights and losing out due to the company being undervalued. Also the underwriting and other transactions costs of issue rise. Therefore the lower the proportion of shares that can be pre-sold to existing shareholders, the less likely it is to be worthwhile for an undervalued company to issue.

The certification of value via underwriting limits the negative response on announcement of an issue. A non-underwritten offer which was not largely pre-sold would not be worthwhile because the market would view the issuer as overvalued and the loss of market value would be more than the extra direct costs of an underwritten rights issue or SEO. SEOs are preferred to underwritten rights because the transactions costs of selling rights are taken as adding to the costs of rights issues relative to SEOs, so that, if more than a certain proportion of investors wish to sell, the SEO method is cheaper. The above argument implies that, on average, overvaluation of issuers increases as one moves from non-underwritten rights to underwritten rights to SEOs.

As they expect, E&M find that the average response on announcement of both types of rights issue is less negative than for SEOs and that there are larger positive AARs during the three months preceding SEOs than preceding rights issues. The trouble with their argument is that it explains why rights issues and SEOs might co-exist rather than why rights have disappeared. For example, they present no evidence that it

has become harder to arrange subscription precommitments, which would imply an increase in the value of underwriting. They note the tendency for companies to become more widely held but also observe that large utilities are both widely held and achieve high subscription precommitments. Why are rights issues no longer used by these utilities? What remains to be done is to identify more precisely what has *changed* in the USA that might explain the disappearance of rights.

7. Why are non-underwritten rights issues uncommon in the UK?

A long-standing puzzle in the UK is why more companies do not avoid the cost of underwriting by making rights issues at a deep discount of 30% or more to the market price the day before the announcement. In continental Europe it is 'common' to use deep discounts (Aase, 1988, p. 183). It is worth re-stating that in theory a lower offer price relative to the market price does not imply a higher cost of share capital for the new equity, any more than a scrip or bonus issue should affect the cost of capital. For a given amount to be raised, a lower offer price means a greater number of shares to be issued and a lower ex-rights price. But assuming no difference in market response and transaction costs between different levels of discount, the wealth of shareholders is unaffected by the depth of discount or by whether or not they sell their rights. Of course, for issues in which there are no tradable rights - open offers in the UK and SEOs in the USA - the discount does matter. A larger discount means a larger transfer of wealth from shareholders who do not maintain their stake to investors acquiring or increasing stakes.

Evidence that the price of underwriting is excessive makes its prevalence harder to understand. Marsh (1980 and 1994) uses the Black-Scholes model of options valuation to estimate a fair price for the put option provided by the underwriting. The exercise price of the option the company has bought to sell the shares if the issue fails is the price at which the issue is underwritten, which is the offer price. The cost of sub-underwriting is often 1.25% of the amount underwritten, with an additional 0.5% for the lead underwriter, although other rates occur, and the *proportion* of issues underwritten certainly varies. 40% of issues are less than 100% underwritten (Armitage & McDiarmid, 1997).

For a sample of 691 rights issues during 1986-93, Marsh (1994) estimates that 86% of the value weighted average sub-underwriting fee of 1.43% is excess payment, ie above the fair value of the underwriting.¹⁴ With issues weighted equally, the excess payment is 68% of the total compared with 48% in Marsh (1980) for a sample of 539 issues during 1962-75, so that the overpricing seems to have increased. The excess is positively related to size of company and of issue. The value weighted ex post average fee in excess of loss for 1986-93 is 52% of the total paid, lower than the ex ante estimate from the options pricing formula. This reflects the impact of the 1987 stock market crash; excluding the crash, the fee after loss was 87% of the total, in line with the ex ante estimate.¹⁵

Breedon & Twinn (1995) present an alternative estimate of the value of underwriting: the cost of put options expiring after the offer period, for companies with traded options. On this basis, 39.5% of the value weighted sub-underwriting fee is excess payment. They attribute most of the difference from Marsh's 86% estimate to including the cost of the traded options' bid-ask spread. It should be added that UK sub-underwriters themselves say that it is 'not a very profitable activity', with one institutional trade association implying that it was performed 'out of a sense of civic duty' (Director General of Fair Trading [DGFT], 1995, p. 17).

Recent evidence provided by Armitage & McDiarmid (1997) puts the question in a new perspective. Two points are relevant. First, they find that underwriting is only dispensed with to the extent that the issue has been pre-sold. Companies do not rely on a deep discount on its own to guarantee sale of the shares: virtually all deep discount offers are entirely or mainly pre-sold. This suggests that, for some reason, a deeply discounted offer is not merely problematic but is simply not an option without the prior support of shareholders. Second, non-underwriting costs, which are principally the 'corporate finance' fee for the arranger, the broker's fee and lawyer's and accountants' fees, are both larger and more variable than the underwriting costs. Controlling for economies of scale, ownership concentration, and other factors affecting the total direct costs of issue (see Section 5), non-underwritten rights issues are cheaper than either underwritten rights issues or placings and open offers, but the difference is not

statistically significant. This evidence suggests that the case for deep discount non-underwritten rights issues may not be as clear-cut as previously thought, but the aversion to deep discounts remains to be considered.

Companies are extremely reluctant to cut DPS and do not wish EPS to be 'diluted'. For any given amount to be raised, a deeper discount means issuing more shares which means a larger total dividend payment *unless* DPS is cut. Companies which desire neither a large increase in dividends nor to cut DPS will therefore avoid deep discounts, especially for larger issues.

A questionnaire to finance directors by Edwards & Mayer (1985) indicated that the main reason for avoiding deep discounts is indeed the perceived need to maintain DPS. A further questionnaire by Walmsley (1991) produced similar findings, with concern about dilution of EPS and DPS following a deep discount issue even though both EPS and DPS are adjusted for the scrip element of rights issues by information services and in subsequent reports and accounts.¹⁶ Because of these adjustments, if DPS were cut in line with the scrip element, reported DPS would also be unchanged. So investors would not even be presented with illusory reductions in growth of DPS and EPS which they would have to 'see through' to avoid being misled. The case is not analogous to a real cut in dividends or earnings, which is presented and recorded as a cut in DPS or EPS. So the above reason for eschewing deep discounts seems real enough but bizarre.

Costs of selling rights: capital gains tax (CGT), brokerage fees and the bid-ask spread. CGT may arise if the value of a right exceeds the cost of purchasing the share giving entitlement to it. It is common to sell sufficient rights to pay for subscription by exercising the remainder ('tail-swallowing'), so no cash is realised, and in these cases CGT on the rights sold is still payable.¹⁷ But all investors are exempt except insurance companies, corporate shareholders, and individuals whose net capital gains exceed the annual limit. In practice it is mainly individuals who occasionally find themselves liable for CGT in selling rights. CGT could be avoided by subscribing, but raising cash has costs and the investor may not wish to maintain his stake.

As regards brokerage fees and bid-ask spread, while it is true that these costs increase with the value of the rights, this does not imply that they are *extra* costs unless they are increasing as a percentage of the amount an investor wishes to sell, which there is no reason to expect. If an investor wishes to realise cash and it is cheaper to sell shares than rights, he can of course do so.

Potential adverse market reaction. According to the underwriter certification argument already presented, the market will infer that a company using a non-underwritten issue is overvalued unless all or most of it is pre-sold, because many undervalued companies will choose not to issue as non-subscribing shareholders will lose out. Therefore any company which does use a deep discount issue which is not largely pre-sold can expect a drop in its market value. This expectation may deter most companies; in fact investment bankers say that some shareholders would interpret a deep discount offer as a signal that the company thought it was overvalued (Marsh, 1980 and 1994; DGFT, 1995). It is difficult to test this potential adverse reaction hypothesis because it postulates an event which is avoided and therefore not observed. Marsh (1980) and E&M (1992) report that the depth of discount makes no difference to the announcement date AR but this is consistent with companies which expect the issue to be dubiously received seeking the assurance of underwriting.

It should be noted that the lead underwriter in the UK has less incentive to certify value than has an SEO underwriter. This is because the lead underwriter does not buy the issue, though it takes the risk of not finding sub-underwriters, and because a normal rights issue is made at a 15% to 20% discount, not at the market price. Sub-underwriters have little opportunity for further investigation to certify value, beyond what they already know about the issuer. If certification with rights issues is less credible than with SEOs, issuers may be less overvalued and this may help explain the less negative reaction to rights issues.

Issue market inefficiency. Smith (1977 and 1986) regards the prevalence of underwriting in the US as an example of managers acting in their own interests rather than shareholders'. For the UK, Marsh (1994, p. 38) suggests that it is due more to managers' 'misunderstandings and misplaced concerns' than to self-interest on their

part. Shareholder sanction may be not be forthcoming because 75-80% of shares are managed by institutions which participate in sub-underwriting and therefore benefit from it. The main group excluded from sub-underwriting are individual investors.

The rights issue process has been investigated by the Director General of Fair Trading (1995) by means of interviews with issuers, merchant banks, brokers and sub-underwriters, and consideration of academic research, especially Marsh (1994). The Director-General's view is that, although there is no evidence of a formal cartel, competition is 'not working properly' in the share issue market (p. 35). Some institutional factors inhibit competition: companies do not lightly change their merchant bank or broker; organising share issues is only a part of the services provided and it would involve duplication of costs to use different banks for different corporate finance services; prior to an issue is an awkward time to attempt to change advisors. Merchant banks have an interest to recommend underwriting, because otherwise they lose some of their fees. He is not satisfied with such arguments as were put forward for the fixed fee structure and believes fees should vary with the risks involved; indeed 'most of those consulted did not justify the level of fees on other than historical grounds' (p. 15).

Finally, the evidence of Armitage & McDiarmid (1997) has suggested a new question. They find that the direct costs of placings and open offers are no less than those of rights issues. As explained above, the level of discount is not an extra cost in a rights issue, but arguably it is a cost in an open offer (and a US SEO), since there is no market for the rights. Other things being equal, the discount causes the market price to fall, which means a loss of wealth for which shareholders who do not subscribe can not be compensated, since they can not sell their rights. Open offers are made at a median discount to the market price of 8.8%, and 45.6% of new shares are not subscribed for by existing shareholders, so the loss of wealth involved is not negligible. Arguably this makes open offers more expensive than rights issues. The question, then, is why open offers are popular; they account for 39.2% of the issues in Armitage & McDiarmid's sample.

8. Unanswered questions

The long run underperformance of issuers' shares. This implies that issuers are systematically overvalued and remain so after the SEO announcement. It is puzzling why the phenomenon persists but one implication is that the certification function of underwriting or, to a lesser extent, sponsoring an issue is more valuable than might previously have been thought. Long run underperformance post issue clearly calls for further investigation, a process begun by Jung et al (1996).

The timing of issues. Considerable progress has been made in understanding why timing is seen to be critical by investment bankers and issuers. For example, companies try to attenuate the signal of overvaluation implied by an SEO. But there is evidence that investors are more receptive to SEOs in general at some times than at others (Bayless & Chaplinsky, 1986). Is this due to changes in market sentiment or are there other reasons?

Companies' choice of issuing method. In the UK it is not clear why most companies eschew deep discount non-underwritten rights issues, whilst the popularity of placings and open offers seems strange, given that they are no cheaper than rights issues and yet the offer price discount means that non-subscribing shareholders suffer a loss of wealth. In the USA the disappearance of rights, which were cheaper than SEOs, has not been satisfactorily explained. Neither has the preference for negotiated over competitive underwriting. It is of course possible that managers are acting irrationally or in their own interests; alternatively we may still lack a full understanding of the choice of issue method. For example, Ng & Smith's (1996) research illustrates both that apparently irrational behaviour may not be so irrational and that complex empirical methods may be required to show this.

A suggestion arising from the review is that, in the USA, the credibility of certification by the lead underwriter is greater with firm commitment SEOs than with rights issues or best efforts SEOs, and in the UK it is greater with underwritten than non-underwritten rights issues. The value of certification is hard to estimate but, given the success companies have in issuing when they are overvalued, an issue without credible certification would be expected to be more expensive in terms of negative investor reaction. Such an argument would help explain companies' choice of issuing

method, and more evidence on the value of certification would help in understanding this choice.

Table 1.

Summary of evidence on the signalling theory

The theory predicts that an SEO announcement signals that the company is overvalued.

<i>Evidence consistent with signalling</i>	<i>Reference</i>
Outperformance for up to two years before announcement, more for industrial than utility issuers	Choe, Masulis & Nanda (1993); Korajczyk, Lucas & McDonald (1990); Barclay & Litzenberger (1988); Asquith & Mullins (1986); Masulis & Korwar (1986); Mikkelsen & Partch (1986)
Underperformance for three and five years after issue	Jung, Kim & Stulz (1986); Loughran & Ritter (1995); Speiss & Affleck-Graves (1995); Levis (1995); Hansen & Crutchley (1990)
Less negative reaction to convertible bond issues and no significant reaction to straight bond issues	Eckbo (1986)
Less negative reaction to rights issues	Levis (1995); Eckbo & Masulis (1992); Hansen (1989); Marsh (1979)
Negative reaction not due to lower gearing	Sant & Ferris (1994); Choe et al (1993); Masulis & Korwar (1986); Mikkelsen & Partch (1995)
SEO announcement causes price of issuer's bonds to fall	Kalay & Shimrat (1987)
Positive reaction when company withdraws an SEO. Signal that company perceives itself to have become undervalued	Masulis & Korwar (1986); Mikkelsen & Partch (1988)
More negative reaction if management are selling shares than if they are not	Masulis & Korwar (1986); Mikkelsen & Partch (1985)
Less negative reaction if there is less uncertainty or less information asymmetry concerning issuer	Manuel, Brooks & Schadler (1993); Dierkens (1991); Korajczyk, Lucas & McDonald (1991)
Positive reaction on announcement of sale of shares in a subsidiary company	Schipper & Smith (1986)

Table 1 cont.

<i>Evidence not supporting signalling</i>	<i>Reference</i>
Little relation between reaction to announcement and short or long term changes in company performance	Jung, Kim & Stultz (1996); Brous (1992); Jain (1992)
Conflicting evidence on relation between reaction to announcement and growth opportunities	Jung et al (1996); Denis (1994); Pilotte (1992); Dierkens (1991); Barclay & Litzenberger (1988)
Negative reaction may reflect agency costs	Jung et al (1996)
Negative reaction may be due to inelastic demand (Section 3)	Loderer, Cooney & van Drunen (1991); Barclay & Litzenberger (1988)
Conflicting evidence on relation between reaction to announcement and previous outperformance (Section 4.2)	Bayless & Chaplinski (1996); Jung et al (1996); Korajczyk et al (1990); Asquith & Mullins (1986); Masulis & Korwar (1986)

Table 2

Summary of evidence on price elasticity of demand for share issues

Primary offers

<i>Issue day and after</i>	<i>Reference</i>
Insignificant or very small abnormal return on issue day, negative for industrials, positive for utilities	Hess & Frost (1982); Hess & Bhagat (1986); Lease, Masulis & Page (1991)
Industrial company offer price set at market price or just below, utility offer price set at small premium	Eckbo & Masulis (1992); Lease, Masulis & Page (1991), Bhagat & Frost (1986)
Positive abnormal returns after issue day, more for industrials than utilities	Loderer, Sheehan & Kadlec (1991); Barclay & Litzenberger (1988); Hess & Bhagat (1986); Asquith & Mullins (1986)

Announcement day

No relation between announcement day abnormal return and size of offer for industrial issues	Jung, Kim & Stulz (1996); Sant & Ferris (1994); Barclay & Litzenberger (1988); Bhagat, Marr & Thompson (1985)
Negative relation between announcement day abnormal return and size of offer for industrial issues	Bayliss & Chaplinski (1996); Choe, Masulis & Nanda (1993); Korajczyk, Lucas & McDonald (1990); Masulis & Korwar (1986)
Positive relation between announcement day abnormal return and size of offer for utility issues	Masulis & Korwar (1986)
No evidence that utility issuers are overvalued, so negative abnormal return is due to inelastic demand	Loderer, Cooney & van Drunen (1991)

Secondary offers

Negative abnormal return on issue day	Kraus & Stoll (1972); Scholes (1972)
Positive abnormal return after issue day	Mikkelson & Partch (1985); Krause & Stoll (1972)
No abnormal return after issue day	Scholes (1972)
No relation between abnormal return on announcement and size of offer	Korajczyk et al (1990) and Mikkelson & Partch (1985)

Table 3

Average issue costs in the USA as a percentage of gross proceeds

Number of issues in brackets

	Industrial companies	Utilities
SEOs	6.09%	4.23%
Median size of issue	\$19.8m (351)	\$37.3m (639)
Underwritten rights	4.03%	2.44%
Median size of issue	\$21.6m (42)	\$31.5m (89)
Non-underwritten rights	1.82%	0.51%
Median size of issue	\$8.6m (26)	\$108.6m (23)

Note

The median size of issue is reported because the average is affected by a few very large offers and gives a misleading impression of the size of a typical offer. The figures are not adjusted for inflation. The costs do not include the value of any payment via warrants. Investment bank fees account for about 90% of the costs of SEOs, 75% of underwritten rights by industrial issuers and 60% by utilities.

Source: Eckbo & Masulis (1992).

Notes

1. For more detail, see Eckbo & Masulis (1995) on the USA and Armitage & McDiarmid (1997) on the UK. Eckbo & Masulis's survey of SEO literature includes sections on company sources of funds and market microstructure effects of SEOs but has very little on the UK, the price elasticity of demand for share issues or the long run underperformance of companies making SEOs, which was discovered after their paper was written.

2. Shelf issues are often 'bought deals', sold to the investment bank at the same time as they are announced, in which case there is no gap between announcement and issue date. Most studies exclude shelf issues from their samples.

3. There have been a number of extensions to Myers & Majluf's model. Cooney & Kalay (1993) allow some potential projects to have a negative NPV, in which case issuing can be a positive signal because it means the issuer's project(s) is more likely to have a positive NPV. Viswanath (1993) argues that managers may issue to prevent having to turn down positive NPV projects in future if information asymmetry may become worse, increasing the negative reaction to a future share issue. This motive attenuates the signal of overvaluation.

4. Another signalling theory is proposed by Miller & Rock (1985) who argue that an unexpected security issue implies that future cash flows are less than expected. On this view abnormal returns should be sensitive to issue size in relation to the size of the company and to whether the proceeds are used for capital investment or to repay debt. Use of proceeds appears to make no difference (Barclay & Litzenberger, 1988; Masulis & Korwar, 1986). Evidence on relative issue size is mixed (note 9).

5. White & Lusztig (1980) find that the falls in price on announcement and the day before are statistically significant, after controlling for the impact of simultaneous announcements of earnings per share and dividends per share. They use multivariate regression and do not calculate either the average price fall or abnormal return. Loderer & Zimmerman (1988), using monthly data, find a positive but statistically insignificant

response to the announcement of rights issues in Switzerland and that the ARs are inversely related to the size of the offer. Eckbo & Masulis (1995) summarise the limited evidence from markets other than the USA and comment that 'the lack of a significant negative market reaction to the typical rights issue ... characterizes much of the international evidence' (p. 1045).

6. Healy & Palepu (1990) estimate that company betas increase on average, despite lower gearing due to the issue, and argue that what SEOs signal is an increase in risk. But Denis & Kadlec (1994) present evidence that the increase in betas is due to a bias in estimation. An increase in trading implies a higher beta estimate as share price changes are more synchronised with changes in the market. Issues tend to result in an increase in trading and when the effect of this is controlled for, beta estimates fall following issue announcements.

7. Consistent with this is Slovin & Sushka's (1993) finding of a positive AAR on announcement of the death of shareholders with 10% or more of the shares, suggesting that large shareholders on average 'promote managerial entrenchment' rather than aligning 'insider and non-insider interests' (p. 1293).

8. This should not be a problem for UK event studies since the main data sources, including the London Stock Exchange, Extel, Datastream and the London Share Price Database record midpoint prices.

9. Studies which find a statistically significant negative relation (at the 5% level or better) between relative size of issue and announcement AR for industrial issues include Korajczyk et al (1990) and Asquith & Mullins (1986). Bayless & Chaplinski (1996), Choe et al (1993) and Masulis & Korwar (1986) report that, in a regression with a number of other explanatory variables, AR is negatively related to relative size, but Masulis & Korwar find a positive relation for utilities. Studies of industrial issues which find no significant relation include Jung et al (1996), Sant & Ferris (1994), Barclay & Litzenberger (1988), Mikkelsen & Partch (1986) and Bhagat et al (1985) for primary issues, and Korajczyk et al (1990) and Mikkelsen & Partch (1985) for secondaries.

10. Bayless & Chaplinski (1996), Choe et al (1993), Korajczyk et al (1990) and Masulis & Korwar (1986) find a significant negative relation; Jung et al (1996) and Asquith & Mullins (1986) find no significant relation.

11. Slovin, Sushka & Bendeck (1994) report a similar result and note that ‘the gain in market value obtained at the first SEO as a result of underpricing the IPO is small in relation to the loss in gross proceeds due to underpricing the IPO’ (p. 208).

12. For the UK, Armitage & McDiarmid (1997) find a wide variation in total costs, especially of smaller issues, but they fall from approximately 7% of gross proceeds for a £5m issue to 3% for an issue of £100m or more.

13. There was a very high subscription rate for rights issues of about 95% on average. But this does not tell us the proportion of rights which were sold before being exercised.

14. The value of underwriting does not seem to have been tested in the USA, perhaps because the fee is not identifiable separately from the fees for advice and marketing services. If the fee in underwritten rights is taken to be mainly for the underwriting risk, Marsh (1980) finds that the underwriting was more overpriced in the USA than in the UK.

15. Aase (1988) argues that the ex ante valuation method used by Marsh undervalues sub-underwriting because it implicitly assumes that the company succeeds in selling all the new shares at the offer price, thus biasing upwards the estimated probability distribution of the ex-rights market share price. The point is that, over the range of possible prices in which the market price is below the offer price, from the perspective of the sub-underwriters *as a group* the market price should not reflect the support they themselves would be providing to the price by buying the new shares. Having bought the new shares, they could not, as a group, sell them again at a price as high as the market price. Unfortunately it is not clear from Aase’s paper how much an adjustment for this increases the ex ante value of sub-underwriting.

16. It may be helpful to give an example of these adjustments.

Before ex-rights date:

EPS	20p
DPS	10p
Share price	200p
No. of shares	100m

Terms of deep discount rights issue:

Offer price	100p
No. of shares issued	25m
Theoretical ex-rights price	180p

Adjustment factor 0.9X

The adjustment factor is the theoretical ex-rights price (as opposed to the actual market price on the day the shares go ex-rights, which may be affected by other factors) divided by the market price at the close of the day before the shares go ex-rights. It is applied to the record of all share prices, EPS and DPS up to the ex-rights date.

Suppose the company again produces EPS of 20p and DPS of 10p in the year of the issue. This would, in fact, be an increase, because the previous year's figures need to be adjusted downwards by the factor of 0.9. The record after issue would therefore be:

	Year before issue	Year of issue
EPS	18p	20p
DPS	9p	10p

The price the day before the ex-rights date will be recorded as 180p, not 200p. The earnings and dividend yield for that day will be the same using the adjusted price, EPS and DPS figures as they were with the actual figures.

For the USA, Patterson & Ursel (1993) report, surprisingly, that 'the adjustment for quasi-splits due to rights issues is almost never made' (p. 117) and present evidence consistent with investors being misled by the lower growth rates of EPS and DPS implied by the unadjusted figures. This may be another reason for the absence of rights issues in the USA.

17. Marsh (1980, p. 712) writes that ‘there is no way of offsetting this disposal [of rights] against the purchase of additional shares in the company even if this is achieved by applying the disposal proceeds to the exercise of any remaining rights’. But it may be possible to defer capital gains tax on the proceeds. For ‘small’ sales of rights worth up to 5% of the market value of the shareholder’s existing holding of the shares, the Inland Revenue will allow the proceeds from the sale to be deducted from the acquisition cost of the existing holding for the purpose of calculating future capital gains.

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